Virginia Department of Environmental Quality
Draft 2022 Water Quality Assessment Guidance
Public Comment – Response Document

Comments received
January 19, 2021 to February 18, 2021

Table of Contents

Comments from Virginia Association of Municipal Wastewater Agencies……... 3
DEQ Response…… 7

Comments from Virginia Department of Health……..……..…. 8
DEQ Response……..… 10

Comments from Wild Virginia and Potomac Riverkeeper Network…… 11
DEQ Response……..... 15

Comments from James River Association……17
DEQ Response……. 19

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February 17, 2021

By Email (Amanda.shaver@deq.virginia.gov)

Ms. Amanda Shaver
Virginia Department of Environmental Quality
P.O. Box 1105
Richmond, Virginia 23218

Re: Draft 2022 Water Quality Assessment Guidance

Ms. Shaver:

Please accept the following comments on the Department's draft Water Quality Assessment Guidance. This is submitted on behalf of the Virginia Association of Municipal Wastewater Agencies ("VAMWA") and its Water Quality Committee. As you may know, VAMWA represents approximately 65 clean water utilities; and its purpose is to work together to promote water quality based on scientific principles and sound policy. We support the Department's efforts in the tasks noted.

Assessment Procedures for Recreational Bacteria Criteria

For reasons we have stated in other contexts, we believe it is unnecessary to assess for both the bacterial geometric mean and the Statistical Threshold Value in situations in which there is acceptable data for the application of both. This is because the GM and STV are based on the same statistical distribution of data, and compliance with one is compliance with both. However, if both are to be the focus of assessment, we support the Department's approach as being otherwise consistent with the criteria themselves.

Human Health Assessment for Algae

On p. 16, the 2022 draft assessment guidance describes a procedure for making recreational impairment determinations related to harmful algal blooms (HABs). The procedure references the 17 Oct 2020 version of the *Virginia HAB Task Force - Working Document – Guidance for Freshwater Harmful Algae Bloom Advisory Management*. VAMWA concurs that extended exceedance of the cyanobacteria and cyanotoxin thresholds listed in that document is a reasonable basis for listing decisions. However, because that working document may be subject to change, we emphasize that impairment determinations should require extended exceedance of defensible, human health related HAB or toxin thresholds. HAB-related impairments should not be identified simply based on visual observations or undocumented thresholds.

James River Chlorophyll

1. VAMWA supports most aspects of the proposed procedure for assessing James River chlorophyll. The procedure for processing the chlorophyll values for assessment is consistent with DEQ's previous technical support document for James River chlorophyll. The newer content of the 2022 draft assessment guidance is the basis for determining impairment in the event of two consecutive exceedances of the seasonal mean criteria.

   As VAMWA commented during the standards adoption process, the chlorophyll criteria are not direct indicators of effects but an indirect indicator or surrogate that correlates with the risk of various potential effects integrated over time and space. In VAMWA's view, the occurrence of two or fewer exceedance of the seasonal mean criteria in a six-year period is strong evidence that algal levels are acceptable for aquatic life uses. Clear and direct evidence of algal-related use impairment should be required to make an impairment determination if a segment is otherwise attaining the chlorophyll criteria at the allowable frequency. We generally concur with DEQ to focus on unambiguous phenomena such as algal-related fish kills or blooms that merit health advisories. We would oppose impairment decisions based on indirect or unprovable linkages between algal conditions and potential effects.

2. Following are comments on the proposed bases for triggering an impaired categorization:

   a. "VDH HAB Advisory." The James River should not be held to more stringent HAB-related impairment decisions than other water bodies in the state. For this reason, VAMWA recommends that DEQ make this basis consistent with the related text on p. 16 of the draft guidance, which also addresses impairment determinations based on VDH health advisories. The text on p. 16 includes important information on the required duration of the health advisory as confirmed by follow-up sampling. It also cites specific HAB and toxin thresholds (via the Virginia HAB Task Force - Working Document) that form an objective basis for health advisories. See VAMWA's previous comment on the HAB-related impairment determinations. Such determinations should be based on defensible and documented thresholds rather than visual observations or undocumented thresholds.

   b. "A fish kill documented by DEQ coinciding with chlorophyll concentrations greater than the magnitude of the applicable seasonal mean criterion or a HAB event documented by the HAB Task Force."

      i. The seasonal mean criteria were not derived on the basis of short-term bloom effects; they are low to moderate values and not in the range that would normally be associated with a fish kill. For these reasons, it would be inappropriate to use a seasonal mean criterion as a basis for determining whether algae caused a fish kill. If a chlorophyll guideline is deemed necessary, it is recommended to use twice (JMSTF segments) or three times (JMSOH, JMMH, and JMSPH) the seasonal mean criterion.

      ii. Our understanding is that VDH and the HAB Task Force do not have specific criteria for defining a "HAB Event", apart from cyanobacteria. Some events might be mapped as HABs on the basis of visual reports of water discoloration (M. Smigo, VDH, pers. comm., 10 Feb 2021). Although some events might be confirmed as HABs by

investigation and sampling, others might not. Fish kills can have non-HAB causes such as temperature, salinity, toxic spills, disease, etc. For this reason, VAMWA recommends the basis be amended as follows:

> A fish kill documented by DEQ coinciding with a HAB event confirmed by VDH or DEQ to exceed a documented, effect-based density or toxic threshold.

c. "More than 10% of dissolved oxygen samples are below the Open Water instantaneous minimum criteria". VAMWA concurs with this basis.

3. The assessment guidance should explicitly state that if none of the three bases are triggered, the segment will be assessed as fully supporting.

Lakes Assessment

Several comments, the last (8) being in our view the most important.

1. VAMWA concurs with most aspects of the lakes/reservoir assessment guidance.
2. p. 31 – VAMWA recommends that only epiliminetic samples be assessed for DO and pH impacts, regardless of whether the lake/reservoir is listed in 9 VAC 25-260-187. The same scientific reasoning related to thermal stratification applies to both.
3. p. 31 – Recommended addition: "*Under the classical procedure,* if the bottom of the epilimnion cannot be delineated…". This will help clarify that the sentence refers to the classical procedure rather than a requirement of the guidance.
4. p. 31 – The parenthetical phrase "i.e., the first instance of a 1 degree C change per meter of descent from the surface…" appears to be incomplete.
5. p. 33 – Recommended addition: "The aquatic life (fishery) use of any lake assessment unit is considered impaired for nutrients if the criterion for either chlorophyll a or total phosphorus is exceeded at a station or pooled stations in that unit *in each of the two most recent monitoring years for which data are available*."
6. p. 33 – Recommended addition "Each year must have data for *at least* six of the seven months…"
7. In several locations, the draft 2022 guidance references the concept of pooling data in "homogenous" assessment units. We recommend replacing this with the similar phrase "relatively homogenous." This phrase is more consistent with USEPA (2005) guidance on defining assessment units, and acknowledges that assessment units do not have to have uniform water quality. Rather, assessment units can be defined based on morphological or other factors and still experience limited gradation in water quality.
8. p. 34 – In this section, DEQ recommends a specific procedure for deriving site-specific lake/reservoir criteria. Related comments:
   a. Criteria derivation is a rather complex topic, and it is unclear that assessment guidance needs to specify how criteria are derived.

b. If DEQ chooses to specify a default procedure for deriving site-specific criteria, it should also be clear that other methods could be employed on a case-by-case basis. For example, some stakeholders might prefer to derive criteria using models or empirical linkages between water quality and use indicators.

c. VAMWA could not locate the 2005 AAC Addendum 1 online to determine the details of the default procedure for deriving site-specific criteria. However, the description in the draft 2022 guidance seems to indicate that the median TP criteria would be derived as the existing median TP concentration, and that the 90th percentile chlorophyll criterion would be derived as the existing 90th percentile chlorophyll concentration. This would be inappropriate. If water quality remains stable, the existing median would be exceeded two years in a row on a relatively frequent basis (25% probability with any two monitoring years). Similarly, the 90th percentile of any given year is just as likely to exceed the long-term 90th percentile as to be below it. If the intent is to base the criteria on the existing water quality, they should be based on an upper prediction interval of these statistics. This would be similar to how many of the James River chlorophyll-a criteria were derived.

U.S. Environmental Protection Agency. 2005. Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303 (d), 305(b) and 314 of the Clean Water Act. U.S. Environmental Protection Agency, Office of Water, Office of Watersheds, Oceans, and Wetlands, Assessment and Watershed Protection Division, Washington, DC.

As always, we appreciate the efforts of the Department and its personnel on this important guidance.

Sincerely,

//Jamie S. Heisig-Mitchell//

Jamie S. Heisig-Mitchell, Chair
VAMWA Water Quality Committee

cc: VAMWA Board
Water Quality Committee
Clifton Bell
Christopher D. Pomeroy, Esq.

DEQ Response to Virginia Association of Municipal Wastewater Agencies

Assessment Procedures for Recreational Bacteria Criteria

DEQ Response: DEQ's assessment methodology is consistent with EPA recommendations to implement and assess the updated recreational bacteria criteria.

Human Health Assessment for Algae

DEQ Response: The Harmful Algal Blooms (HABs) section of the Recreation/Swimming Use Evaluation has been updated with a reference to the most recent guidance available on the VDH webpage. An impairment determination will be made if a VDH swimming advisory was issued in the two most recent years of the assessment window and the HAB event persisted for at least a 30-day period and was confirmed through follow-up monitoring.

James River Chlorophyll

DEQ Response: While DEQ acknowledges that the James River chlorophyll criteria were developed with respect to specific endpoints tied to the harmful effects of phytoplankton biomass, there are harmful effects that could potentially arise that were not considered due to lack of evidence or information at the time when the chlorophyll criteria were amended. DEQ believes that aquatic life in the James River should be able to recover from harmful effects provided the chlorophyll criteria are met, but the agency acknowledges aquatic life recovery may be impacted if seasonal mean criteria are exceeded in the same tidal James River segment in consecutive years. DEQ believes the one-year time interval between monitoring years is sufficient for recovery from any impact but that adequate recovery will be ensured by including in its assessment process the additional lines of evidence that have been proposed. As with all the assessment tools that DEQ uses, the narrative and numeric thresholds used to evaluate these additional lines of evidence will be updated with advances in scientific and policy understanding, including HAB guidelines finalized by VDH. The language in the assessment guidance manual has been slightly modified to make clear that only HAB advisories issued by VDH's Division of Shellfish Safety will be used to determine whether a segment is impaired.

Lake Assessment

DEQ Response

2. 9VAC25-260-50 explicitly states dissolved oxygen and pH criteria only apply in the epilimnion in lakes/reservoirs listed in 9VAC25-260-187.
3. Incorporated into final guidance.
4. Paragraph corrected in final guidance.
5. Incorporated into final guidance.
6. Incorporated into final guidance.
7. Incorporated into final guidance.
8. The section describing the process for determining site-specific criteria has been removed and replaced with the following statement on page 33: *Site-specific criteria would be developed using the process described in § 62.1-44.15 of the Code of Virginia*

Harmful Algal Blooms (HABs)

The Virginia Department of Health (VDH) is the agency responsible for issuing notices and swimming advisories due to HAB complaints. Advisories are issued based on the ~~Virginia HAB Task Force - Working Document – "Guidance for Freshwater Harmful Algae Bloom Advisory Management" which is posted to the HAB Task Force website at the following link: https://www.vdh.virginia.gov/content/uploads/sites/12/2016/02/FINAL_Working_HAB_-Guidance_17Oct2019.pdf.~~Virginia Department of Health's "Guidance for Cyanobacteria Bloom Recreational Advisory Management" which is posted to the VDH website: https://www.vdh.virginia.gov/waterborne-hazards-control/harmful-algal-blooms/

A VDH swimming advisory that was issued in the two most recent years of the assessment window and persisted past the minimum required follow-up sampling events and extended for at least a 30-day period, would constitute an impairment of the recreation use. The regional assessor should delineate the impairment using the GIS information provided by VDH.

If a VDH swimming advisory was issued in the two most recent years of the assessment window and was lifted after the minimum required follow-up sampling events, this waterbody would be assessed as insufficient information with an observed effect for the recreation use. The regional assessor should delineate the observed effect using the GIS information provided by VDH. No swimming advisories issued within the most recent two years of the assessment window would constitute a delisting in a waterbody where advisories were issued in the past which resulted in an impairment determination. If a waterbody had previously been assessed with an observed effect, no swimming advisories issued within the most recent two years of the assessment window would result in removal of the observed effect for the recreation use.
>>>>

Comments and questions from Todd Egerton and Margaret Smigo (VDH: OEHS: Shellfish Safety and Waterborne Hazards)

- This seems like a positive step forward toward identifying and prioritizing waterbodies where cyanobacteria blooms have been occurring, and ultimately working towards solutions for factors contributing to the blooms. VDH looks forward to working with DEQ on this process.

- Since the proposed DEQ HAB impairment designation will be dependent on VDH advisories lasting 30 days or more, the agency requests clarification in terms of how DEQ will determine temporal and spatial extents.

    - Temporal: the 2nd paragraph language related to days of the advisory to be considered for impairment, is a bit confusing. A recommendation for your consideration is "*...and persisted for at least a 30-day period"* and to remove the section in the 2nd and 3rd paragraphs about follow-up sampling. After an advisory has been issued, samples are typically collected on a bi-weekly or monthly basis, and requiring back to back samples (a minimum of 10 days apart) below threshold concentrations for cells and toxins to lift the advisory. The assessment could be accomplished by use of "advisory issued" and "advisory

lifted" dates provided in VDH press releases in order to determine if the 30-day window is exceeded.

- Spatial: Advisories issued on smaller lakes and ponds, the advisory has been for the entire water body. For larger areas, specifically Lake Anna and Flannagan Reservoir, VDH has issued advisories for specific portions of the waterbody based on representative samples from the respective segments. This segmentation has been carried out by DEQ and matches their assessment segments for those waterbodies. For the HAB impairment documentation, VDH would like to ensure the advisories, assessment language, and segmentation are consistent. The 3rd paragraph says "*The regional assessor should delineate the observed effect using the GIS information provided by VDH.",* however, the spatial information (sample location, segmentation) utilized to-date has been provided by DEQ. Clarification about what specifically is being requested from VDH for future segmentation of waterbodies, is recommended. This may be as simple as saying which of the segments were under advisory, and for how long. However, if there is an expectation that VDH staff would be developing segmentation or other spatial delineations of the waterbody, we would request additional discussion so expectations of our roles are clear.

- Spatial: Would this policy consider potential recreational HAB advisories in all state waters? Prior advisories have predominantly been in inland freshwater ponds and lakes. VDH expects that this approach could also extend to flowing (streams and rivers) and transitional (brackish) waters as cyanobacteria are known to bloom in these waters. There have been cyanobacteria blooms in the upper oligo/mesohaline reaches of tidal rivers in recent years, and there have been reports and samples collected from streams and rivers throughout the state. Blooms in these waters would also require segmentation support by DEQ if they were issued to make sure the advisory and assessment areas are consistent.

- Finally, we would like to know if there is any consideration on the details of the advisory beyond the duration of days. We suggest that if the assessment was used to prioritize waterbodies in the state, that details such as different algal toxin concentrations, or reported health effects (human health impact reports, pet death, etc.) could provide additional information as metrics of HAB severity/magnitude.

DEQ Response to Comments from Virginia Department of Health

DEQ Response: The final guidance will be updated to reflect a reference to the most recent version of the Harmful Algal Blooms (HABs) guidance available on the VDH website.

Language was modified for clarity based on VDH comments.

February 18, 2021

Amanda Shaver
Virginia Department of Environmental Quality
amanda.shaver@deq.virginia.gov

Re: Comments on Draft 2022 Water Quality Assessment Guidance Manual, 1/19/2021

Dear Ms. Shaver:

The undersigned are submitting these comments on behalf of Wild Virginia and Potomac Riverkeeper Network (Riverkeeper).[1] We appreciate the chance to provide our ideas. Of primary concern, as explained more fully below, are the following issues:

- that the guidance does not provide for the use of existing, readily-available information that demonstrates violations of the narrative criteria contained in the state's water quality standards regulation and
- a proposed sampling schedule for *E. coli* bacteria will not adequately characterize water pollution risks in a way that provides protection of human health and recreational users.

Based on these deficiencies, we ask that the final guidance allow for the use of additional types and sources of information to ensure that all water quality standards (WQS) are fully enforced and that sampling regimes be designed in a way that allows for a true analysis of designated use support.

Narrative Criteria and Recreational Uses

The Department of Environmental Quality (DEQ), in fulfilling its duties under Clean Water Act (CWA) section 303(d), must "evaluate all existing and readily available water quality-related data and information" concerning potential WQS violations, as required by federal regulations. 40 C.F.R. § 130.7(b)(5). Our organizations and others have supplied a large volume of "water quality-related data and information" to DEQ, in comments on the 2020 Water Quality Assessment Integrated Report (Integrated Report) and in other submittals. This information addresses the impairment of human uses of waterbodies caused by pollution that produces color, turbidity, floating and settleable solids, nuisance algal growth, and other physical and chemical changes in water and in stream channels. Much of this information describes conditions during the period of coverage for the 2022 Integrated Report, so must be assessed in that report's preparation.

[1] Contacts for the groups are:

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The 2022 Water Quality Assessment Guidance Manual (2022 Guidance) must describe how these kinds of information will be used to assess compliance with WQS, the appropriateness of "impaired" waterbody designations, and/or the need for additional targeted monitoring to further assess the impacts identified. In response to challenges to previous impaired waterbody listing decisions, DEQ has finally acknowledged that visual and physical conditions can interfere with designated uses in certain streams in the Shenandoah River watershed. By attempting to characterize the levels of attached filamentous algae that interfere with recreational uses, DEQ has taken an important and necessary step in the use of state WQS. However, this admission by the Department fails to go far enough in acknowledging obvious and serious negative impacts on streams caused by pollution.

The "general criteria" (also known as "narrative criteria") defined in the Virginia WQS regulations, at 9 VAC 25-260-20., provide, in pertinent part, that state waters "shall be free from substances . . . in concentrations, amounts, or combinations which interfere directly or indirectly with designated uses of such water . . . ." Also, "[s]pecific substances to be controlled include . . . substances that produce color, tastes, turbidity, odors, or settle to for sludge deposits; and substances which nourish undesirable or nuisance aquatic plant life." Id.

Thus, these general or narrative criteria are expressed in terms that can be understood and measured in human terms by those who wish to and have a right to use these waters. These criteria, because they are not expressed in quantitative terms like the numeric criteria, require interpretation. However, this factor does not justify DEQ in failing to even attempt to apply these criteria in the many instances where clear and readily-available information demonstrates that they are violated.

Because the most reliable test as to whether humans can or should use streams for recreation, including fishing, swimming, wading, boating, and aesthetic enjoyment, is based on human perceptions, these are not only valid measures to use in assessments, they are the most appropriate. We note again that the federal regulation refers to "water quality-related data and information," a very broadly-worded command that DEQ must not answer with an arbitrarily-narrow approach.

As long as the information from members of the public is adequately descriptive, specific, and credible, the Department has no basis to disregard that information. Further, photographs are certainly reliable evidence, which courts routinely allow, as long as the photographer can verify that the images are true representations of what she or he saw. If such sources are good enough in legal cases, they must be sufficient for DEQ. Finally, we have also submitted evidence from experts in the fields of water quality assessments and commercial operators whose livelihoods depend on their abilities to judge when conditions interfere with recreational uses. Again, expert observations and opinion testimony are well-established as credible and reliable.

While DEQ has begun to consider visual and physical conditions, such as those represented in the filamentous algae assessments mentioned above, the agency continues to insist that such observations can only be valid for the integrated report if they are first translated into numeric

terms. It is true that once WQS violations have been identified, through direct application of the general criteria, numerical thresholds must be established in permitting or development of Total Maximum Daily Loads. However, the need for those additional steps does not justify DEQ's approach at the assessment and listing stages. Federal regulations clearly anticipate that such a two-step process will be followed. At 40 C.F.R. § 122.44(d)(1)(vi), the regulations require that authorities develop numeric permit limits *after* it is shown that a discharge will result in violation of narrative criteria in a waterbody. The regulation then lays out three specific methods for translating the narrative criteria into numeric permit limitations. Thus, there is no basis for DEQ's position that the translation must occur at the first step, during the water quality assessment phase.

Fortunately, the U.S. EPA and other states have provided guidance and examples for the use of the public's observations and documentation of impacts and impairments of waterbody uses. The EPA discussion of these methods, with examples of the ways numerous states have used such methods is included in the document attached to this letter.[2]

The EPA explains that:

> A State can determine whether a waterbody is attaining its applicable narrative nutrient or other relevant narrative criteria and designated uses by using results of visual assessments. For example, field observations of excessive algal growth, macrophyte proliferation, adverse impacts on native vegetation (e.g., eelgrass), presence or duration of harmful algal blooms, unsightly green slimes or water column color, and/or objectionable odors may be a basis to include a waterbody on the State's Section 303(d) list for failing to meet one or more applicable narrative criteria and designated uses.[3]

One type of information that Riverkeeper has supplied to DEQ is a prime example of evidence such as that EPA describes. Citizens have reported obnoxious odors caused by decaying algae in Shenandoah watershed streams on many occasions, likening the odors to raw sewage or dead animals. And these public reports were endorsed by DEQ's former field monitoring supervisor when he described his observation of nuisance algae in the North Fork Shenandoah River as "definitely nasty" and noting that these materials "are quite often mistaken for sewage, due to both appearance and odor."[4]

Virginia would be following numerous other states in using the types of information we have submitted and cited herein, as described in the EPA memo. For example:

> Vermont uses public feedback and complaints in addition to field surveys of algae blooms to assess waters for attainment of the above water quality standard. For the swimming/contact recreation use in lakes, waters are considered impaired if

[2] U.S. EPA, *Memorandum: Information Concerning 2014 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions*, Denise Keehner, September 3, 2013.
[3] Id.
[4] Kain, Donald, Virginia DEQ, email to Leslie Mitchell *RE: Cow poop dumping*, July 9, 2012.

> an ongoing record of public complaint concerning the algal conditions in the water has been established.[5]

and

> Montana's assessment method to address nitrogen and phosphorus pollution for wadeable streams includes an "overwhelming evidence of nutrient impairment" provision for which photo documentation is adequate to make an impairment determination for aquatic life use.[6]

Finally, we note that, while the EPA document deals solely with ways to make and use valid observational data in relations to nutrient pollution and excessive algae, these same methods are just as valid for findings that designated uses are damaged by color, turbidity or solids concentrations, and other conditions. Virginia must incorporate these types of methods into the 2022 Guidance and acknowledge the information available to it in preparing the 2022 Integrated Report.

E. coli Monitoring Frequencies

Based on information presented in DEQ's webinar describing the draft 2022 Guidance, we understand that the Department will assess ***E. coli*** levels in any particular impaired stream for only one 90-day period each year and that these single 90-day periods per stream would vary for all the different streams throughout the year, to allow agency personnel to collect samples from all the streams that need assessment. We believe that this system is flawed for two primary reasons.

First, the contribution of bacteria to streams in areas such as the Shenandoah watershed is likely to be highest in periods when application of manure is most prevalent, in spring and summer. Second, the uses to be protected, human recreational uses, happen primarily in the warmer months and, therefore, any assessment of risks from exposure to pathogens in the water must be made in the same period. Sampling that is intended to protect uses must reflect conditions when those uses occur and be designed to detect the real conditions that result from activities on the land and point and nonpoint pollution sources.

Thank you for considering these comments and we would be happy to discuss our concerns further.

Sincerely,

/s/ David Sligh
David Sligh
Conservation Director
Wild Virginia

/s/ Phillip Musegaas
Phillip Musegaas
Vice President - Programs and Litigation
Potomac Riverkeeper Network

[5] U.S. EPA, *Memorandum: Information Concerning 2014 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions*, Denise Keehner, September 3, 2013, at page 10.
[6] Id.

DEQ Response to Wild Virginia/Potomac Riverkeeper Network

Narrative Criteria and Recreational Uses

DEQ Response: DEQ acknowledges the difficulties and challenges raised by interpretation and application of the Water Quality Standards' General Criteria (9 VAC 25-260-20). The mere presence of "*substances attributable to sewage, industrial waste, or other waste*" does not automatically cause or lead to an impairment, but could if these substances exist in "*concentrations, amounts, or combinations* ***which contravene established standards or interfere directly or indirectly with designated uses*** *of such water or which are inimical or harmful to human, animal, plant, or aquatic life*" (emphasis added). In order to reduce the uncertainty resulting from the use of subjective criteria, DEQ intends to address the two most prominent issues identified in the comment letter – filamentous algae and turbidity – during upcoming regulatory rulemakings. Having numeric criteria will greatly aid in making valid, defensible assessments of water quality conditions and determinations that designated uses are protected. Assessments will be supported by reliable, objective data generated by scientifically-based monitoring protocols, which are reproducible and could potentially be added to citizen monitoring programs. If impairments are detected, the criteria will serve as the endpoints for restoration efforts under a Total Maximum Daily Load.

The first (filamentous algae) is included as a consideration for the next Triennial Review of the Water Quality Standards (WQS) regulation. A Notice of Intended Regulatory Action (NOIRA) was recently published (3/1/21) in the Virginia Register and includes the following: "*Add a benthic chlorophyll-a threshold as outlined in Virginia's recent 305(b)/303(d) Water Quality Assessment Integrated Reports that protects the recreational use from nuisance filamentous algae in certain main-stem sections of the North Fork Shenandoah River and South Fork Shenandoah River*". After the NOIRA public comment period closes (on 3/31/21), a Regulatory Advisory Panel of interested stakeholders will be formed to aid in drafting a proposal for consideration by the State Water Control Board for adoption into the WQS regulation.

The second issue (turbidity) will be addressed under a separate rulemaking. A NOIRA will be published in the Virginia Register on 4/12/21 with a 30 day comment period which will close on 5/12/21. After the NOIRA public comment period closes, a Regulatory Advisory Panel of interested stakeholders will be formed to aid in drafting a proposal for consideration by the State Water Control Board for adoption into the WQS regulation.

DEQ will continue to fulfill its obligations to consider and evaluate existing and readily available water quality-related data and information, including the observations and information provided by the public regarding water quality conditions in the Shenandoah.

E. coli Monitoring Frequencies

DEQ Response: DEQ provides the public with a big picture view of water quality status regarding bacteria pollution. The DEQ monitoring program is designed to identify recreational waters that are in need of a water quality study and cleanup plan. It does not provide a real-time indication of swimming conditions for the public.

More frequent monitoring will be necessary to implement the updated recreational bacteria criteria. The agency is currently conducting a pilot study at selected stations to determine the resources needed to collect weekly bacteria samples versus the monthly samples previously required. As high-frequency bacteria monitoring cannot be performed everywhere, DEQ will identify recreational waters for prioritization so that resources can be directed toward those areas. The agency will continue to monitor those waters with watershed cleanup plans to determine progress toward meeting implementation targets.

Following the pilot study, DEQ will engage citizen and other non-agency monitoring partners to report findings and determine ways to better work together. DEQ plans to revise the Virginia Citizen Water Quality Monitoring Program Methods Manual, which will address ways citizen groups can adapt to changes in the bacteria standards. DEQ also plans to hold workshops on ways to adapt current monitoring plans or create new ones. DEQ will also seek input from monitoring partners to identify recreation areas and waterways that should be prioritized for bacteria monitoring, subject to available resources.

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February 18, 2021

Ms. Amanda Shaver
Department of Environmental Quality
P.O. Box 1105
Richmond, 23218

Dear Ms. Shaver,

Thank you for the opportunity to provide comments on DEQ's Water Quality Guidance Manual. The James River Association (JRA) is a member-supported nonprofit organization founded in 1976 to serve as a guardian and voice for the James River. Since 2013 we have been submitting water quality data to DEQ, including level II data utilized for DEQ's Integrated Report. We interact with DEQ frequently through our water quality monitoring program and through various regulatory advisory committees. We appreciate the chance to raise a few questions and comments.

- **Aligning the new bacteria assessment method with the realities of DEQ's sampling frequency.** Given the updated requirements in Part 4 Rule 3 - *"Ten or more samples in a 90-day period are required to calculate a geometric mean"* - JRA is concerned that the DEQ's own water testing program will not be testing frequently enough to meet the requirements for listing an impaired section. DEQ AQWM program samples bimonthly, which would only provide 6 samples during a 90 day period.
- **Treatment of Left Censored Data.** DEQ has made the decision to use 0.1 for values that are lower than the detection limit (LOD) when calculating geometric means. Common practice[1],[2] is to use the LOD/2 or LOD/$\sqrt{2}$ when making substitutions for non detected values.
- **Continued use of recreational bacteria standards.** The Virginia Department of Health (VDH) continues to utilize Virginia's previous bacteria standards for assessing swimming beaches monitored by VDH. To date, DEQ has advised JRA to continue using the VDH criteria in determining whether public beaches/ramps monitored by JRA meet recreational swimming conditions. We post our results at www.JamesRiverWatch.org throughout the summer season when public recreation on the water is typically at its

[1] https://aem.asm.org/content/84/20/e01203-18

[2] https://pubs.acs.org/doi/10.1021/acs.est.9b05042

highest. Several organizations across Virginia complete similar work and post results through platforms like www.theSwimGuide.org to help the public understand current river conditions. JRA recommends that DEQ consult with nonprofits or community organizations that lead water monitoring programs, and to provide updates on the change in water quality standards and assessment methods, in order to clarify if/how these changes will influence community water monitoring programs and how they relay that information to the public.

JRA and our partners currently monitor nearly 30 stations statewide, collecting over 400 samples per year over a weekly frequency from May-September. We welcome the opportunity to continue discussing DEQ's plans for rolling out the new bacteria assessment method and strategizing about ways JRA and other organizations in Virginia can assist in assessing the Commonwealth's waterways.

Sincerely,

Erin Reilly

Staff Scientist

Jamie Brunkow

James Riverkeeper and Sr. Advocacy Manager

DEQ Response to James River Association (JRA)

Aligning the new bacteria assessment method with the realities of DEQ's sampling frequency.

DEQ Response: More frequent monitoring will be necessary to implement the updated recreational bacteria criteria. The agency is currently conducting a pilot study at selected stations to determine the resources needed to collect weekly bacteria samples versus the monthly samples previously required. As high-frequency bacteria monitoring cannot be performed everywhere, DEQ will identify recreational waters for prioritization so that resources can be directed toward those areas. The agency will continue to monitor those waters with watershed cleanup plans to determine progress toward meeting implementation targets.

Following the pilot study, DEQ will engage citizen and other non-agency monitoring partners to report findings and determine ways to better work together. DEQ plans to revise the Virginia Citizen Water Quality Monitoring Program Methods Manual, which will address ways citizen groups can adapt to changes in the bacteria standards. DEQ also plans to hold workshops on ways to adapt current monitoring plans or create new ones. DEQ will also seek input from monitoring partners to identify recreation areas and waterways that should be prioritized for bacteria monitoring, subject to available resources.

Treatment of Left Censored Data.

DEQ Response: Thank you for the comments and for sharing additional references for consideration. DEQ will review the different methods of treating censored data in the Integrated Report and will identify a preferred method for future assessments. For the 2022 Integrated Report, DEQ will use the Lower Detection Limit for assessment calculations, as it has in previous reporting cycles.

Continued use of recreational bacteria standards.

DEQ Response: DEQ provides the public with a big picture view of water quality status regarding bacteria pollution. The DEQ monitoring program is designed to identify recreational waters that are in need of a water quality study and cleanup plan. It does not provide a real-time indication of swimming conditions for the public. For this reason, it would be most appropriate to continue to follow VDH protocols for issuing swimming advisories in order to relay real time condition information to the public.